

**RAPID TEMPERATURE COMPENSATION MODULE  
FOR SEMICONDUCTOR TOOL**

**ABSTRACT**

[0041] A semiconductor device manufacturing system including a processing subsystem and a compensation thermal subsystem. The processing subsystem includes a process chamber and a thermal control subsystem having a processing subsystem heating element and configured to generate a process chamber temperature profile. The compensation thermal subsystem includes a temperature sensor configured to detect the process chamber temperature profile, a compensation thermal control unit (CTCU) configured to determine variation between the process chamber temperature profile and a desired temperature profile, and a compensation heating element configured to alter the process chamber temperature profile in response to the variation detected by the CTCU.